Cristina Radin

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RESEARCH INTERESTS

Advanced statistical techniques to assess current and future states of the Earth's climate system that identify potential impacts under global warming. Ocean warming; extreme events; machine learning; artificial intelligence; sustainability.

RESEARCH EXPERIENCE

Postdoctoral Researcher, University of Hamburg, Hamburg, Germany. 2025 — Present
AI4PEX European Project: *Artificial Intelligence for enhanced representation of Processes and EXtremes in Earth System Models.*

- Identification of precursors of ocean extreme events using high-resolution Earth Observation datasets and Machine Learning methods.
- Assessment of anthropogenic forcings in the presence of internal climate variability on coastal ocean extremes.
- Dissemination of results through peer-reviewed publications and international conferences.

Doctoral Researcher, University of Valencia, Valencia, Spain. 2020 — 2024
MALOC Project: *MAchine Learning for assessing Ocean Climate.*

- Development of Machine Learning algorithms to assess global and regional sea level variability.
- Integration and exploitation of satellite, in-situ and reanalysis ocean datasets.
- Dissemination of scientific findings through journal publications and conference presentations.

Internship - AEMET, Valencia. 2018
Application of statistical methods to compute a fire danger index.

Extracurricular Practicums - EOLAB, Valencia. 2018
Calculation of biophysical parameters using satellite and in-situ data processing.

EDUCATION

PhD, University of Valencia, Valencia, Spain. 2020 — 2024
Thesis Title: *Machine learning for anticipating sea level variability from regional temperature shifts.*
PhD Directors: Veronica Nieves & Ana B Ruescas.

M.S. in Remote Sensing, University of Valencia, Valencia, Spain. 2019 — 2020
Final Project Title: *Decadal, regional sea level assessment using advanced statistical techniques.*

- Application of the physical foundations of Remote Sensing to Earth Observation data.
- Remote sensing data processing.
- Statistical analysis.

Post Graduate Degree in Industrial and Environmental Applications in Remote Measurement of the Temperature, Valencia, Spain. 2017 — 2018

- Calibration of thermal radiometers.
- Measurement and correction of atmosphere parameters and thermal images.
- Image processing.

B.S. in Physics, University of Valencia, Valencia, Spain. 2014 — 2019
Final Project Title: *Study of Saharan aerosol episodes in Valencia.*

HONOURS AND SPECIAL RECOGNITIONS RECEIVED

Doctoral Thesis: Awarded "Cum Laude" distinction, 2024
University of Valencia, Valencia.

Subject area: Information Analysis and Extraction (with honours), 2020
Master's degree programme in Remote Sensing, University of Valencia, Valencia.

Subject area: Renewable Energies and Solar Radiation (with honours), 2019
Physics degree programme, University of Valencia, Valencia.

PUBLICATIONS

- Vicens-Miquel. M., **Radin, C**., Nieves, V. & Tissot, P. (2025). Enhancing coastal resilience: AI-driven seasonal to multi-year water level predictions for the Texas Gulf Coast. Ocean & Coastal Management, 271, 107946. DOI: 10.1016/j.ocecoaman.2025.107946
- **Radin, C.**, Nieves, V., Vicens-Miquel, M. & Alvarez-Morales, J.L. (2024). Harnessing Machine Learning to Decode the Mediterranean's Climate Canvas and Forecast Sea Level Changes. Climate, 12, 127. DOI: 10.3390/cli12080127
- **Radin, C.**, & Nieves, V. (2024). Unveiling regional climate patterns through global subsurface ocean temperature data: An AI multi-layer analysis framework. Earth Systems and Environment. DOI: 10.1007/s41748-024-00409-w

- Martinez-Amaya, J., **Radin, C**., & Nieves, V. (2023). Advanced Machine Learning Methods for Major Hurricane Forecasting. Remote Sensing, 15(1). DOI: 10.3390/rs15010119
- **Radin, C.**, & Nieves, V. (2021). Machine-Learning Based Reconstructions of Past Regional Sea Level Variability From Proxy Data. Geophysical Research Letters, 48(23). 10.1029/2021GL095382
- Nieves, V., **Radin, C.**, & Camps-Valls, G. (2021). Predicting regional coastal sea level changes with machine learning. Scientific Reports, 11(1), 1–6. DOI: 10.1038/s41598-021-87460-z
- **Radin, C.**, Sòria-Perpinyà, X., & Delegido, J. (2020). Multitemporal water quality study in Sitjar (Castelló, Spain) reservoir using Sentinel-2 images. Revista de Teledetección, 56, 117. 10.4995/raet.2020.13864
- **Franco Radin, C.**, Revert Ferrero, A., Mediavilla González, J., & Núñez Mora, J. Á. (2019). Análisis estadístico de incendios forestales en la Comunitat Valenciana y modificación del índice de peligrosidad de incendios (PIF). Sexto Simposio Nacional de Predicción "Memorial Antonio Mestre," 697–708. 10.31978/639-19-010-0.697

Scientific Activities

Conference papers (abstract- and/or peer reviewed)

- **Radin, C.** & Nieves, V. (2024). Exploring Regional Ocean Climate Variability: Insights from Integrated Clustering and Principal Component Analysis. Session ITS1.2/OS4.10: Machine Learning for ocean science. *European Geosciences Union General Assembly*, Austria. doi: 10.5194/egusphere-egu24-120 – *Oral Session*.
- Vicens-Miquel M., **Radin, C.**, Nieves, V., Tissot, P. & Medrano, A. (2024). Empowering Coastal Resilience: A Multi-Layer Perceptron Approach for Subseasonal-to-Seasonal Sea Level Predictions in the Gulf of Mexico. Paper 436008. *104th AMS Annual Meeting*, USA - *Poster*.
- Martinez-Amaya, J., **Radin, C.**, Nieves, V., N. Longépé & Muñoz-Marí, J. (2023). An AI hybrid predictive tool for extreme hurricane forecasting. Session ESSI1.5: Digital Twins of the Earth. *European Geosciences Union General Assembly,* Austria. doi: 10.5194/egusphere-egu23-12333 – *Poster*.
- Vicens-Miquel M., **Radin, C.**, Nieves, V., Tissot, P. & Medrano, A. (2023). Advancing coastal inundation frequency predictions with an AI-based sub-seasonal to multi-year water level model in the Gulf of Mexico. Session OS53B-1180, Paper 1379320. *American Geosciences Union General Assembly*, USA – *Poster*.
- Martinez-Amaya, J., **Radin, C.** & Nieves, V. (2022). EO data exploitation ML techniques to forecast extreme hurricanes Session C1.07.2 ML4Earth: Machine Learning for Earth - 2, Paper 65458. *Living Planet Symposium,* Germany – *Oral Session*.
- Martinez-Amaya, J., **Radin, C.** & Nieves, V. (2022). An optimal combination of hurricane-related parameters using Machine Learning for Hurricane Intensity Forecasting. Paper 398330. *AMS 21st Conference on Artificial Intelligence for Environmental Science,* USA – *Oral Session*.
- **Radin, C.** & Nieves, V. (2021). A new machine learning approach for regional sea level reconstructions using proxy-climate fingerprints. Session IN15C-0388: Accelerating Earth System Predictability: Advances in High-Performance Computing, Numerical Modeling, Artificial Intelligence, and Machine Learning IV Poster Session. *American Geosciences Union General Assembly,* USA – *Poster*.
- Nieves, V., **Radin, C.** & Camps-Valls, G. (2020). Strengthening our knowledge on regional sea level rise through proxy data and machine learning. Session OS022-04. *American Geosciences Union General Assembly*, USA – *Oral Session*.
- Nieves, V., **Radin, C.** & Camps-Valls, G. (2020). Learning patterns of climate-induced sea level changes with Gaussian Processes. *Climate Informatics*, UK – *Oral Session*.
- **Franco-Radin, C.**, Revert Ferrero, A., Mediavilla González, J. & Núñez-Mora, J.A. Análisis estadístico de incendios forestales en la Comunitat Valenciana y modificación del índice de peligrosidad de incendios (PIF). Sesión 8. Predicción orientada a impactos (8th Session: Extreme events prediction). Sexto Simposio Nacional de Predicción 2018. AEMET, Madrid.
- Volunteer at IGARSS 2016-2019: International Geoscience and Remote Sensing Symposium, Valencia, Spain.

Courses

- Causality course, University of Valencia, Valencia, Spain. 2025
- ML in Python for Environmental Science Problems course, AMS. 2022.
- Artificial Intelligence (AI) for Earth Monitoring. EUMETSAT and ECMWF. 2022
- Deep Learning for Earth Sicences, University of Valencia, Valencia, Spain. 2022
- Kernel Methods Course, University of Valencia, Valencia, Spain. 2021
- Machine Learning in Remote Sensing - Theory and Applications for Earth Observation, IGARSS. 2020

Programming and computer skills

- High-level computing skills in Matlab, ENVI, Python, LATEX, HTML, JavaScript, SNAP.
- Good level of programming in C++, GvSIG, QGIS, Google Earth Engine.

Languages

- **Spanish:** *Native*
- **Catalan:** *Native (Certificate C1)*
- **English:** *Advanced level*
- **German:** *Basic level*